Children use a dispositional core concept when identifying causality

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THEORETICAL BACKGROUND AND RESEARCH QUESTIONS

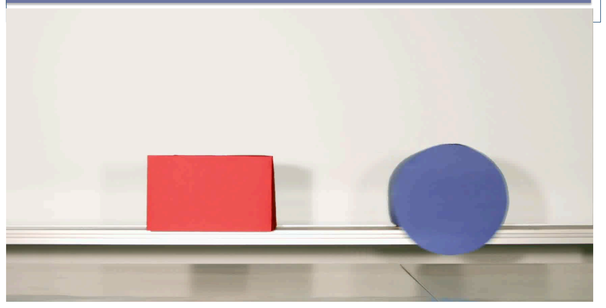
- Children develop core concepts very early
- Despite considerable education, adults do not completely abandon those naïve ideas
- Dispositional theories model causation as an interaction between agent- and patient-objects with intrinsic dispositions[1]:
  - Ontological distinction between "agents" and "patients"
  - Asymmetric activity and effect[2]
- Adhering to ideas of dispositional causality effects
  - Implicit ascription of specific features to the interacting objects
  - The view that properties are transferred from the agent to the patient[3]
- This influences the probability that an event is interpreted as including a causal relation

Research question:

- Do adults and children use a dispositional causal core concept of allocating agent- and patient-roles with corresponding attributes in a collision event?

Based on theoretical insights and the status quo of research, we hypothesize that:

- Interactions of inert objects are interpreted as involving causal dispositions (i.e. goal-directed agent-like causes and interaction-roles)
- Individuals will rate statements as true or false according to their naïve concept
- Adults will implicitly give similar naïve answers as children will explicitly

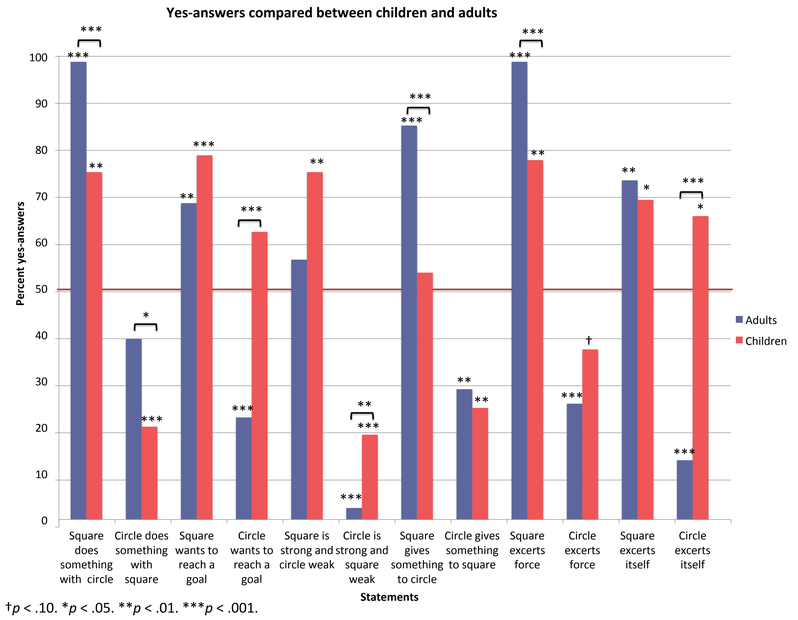


METHODS

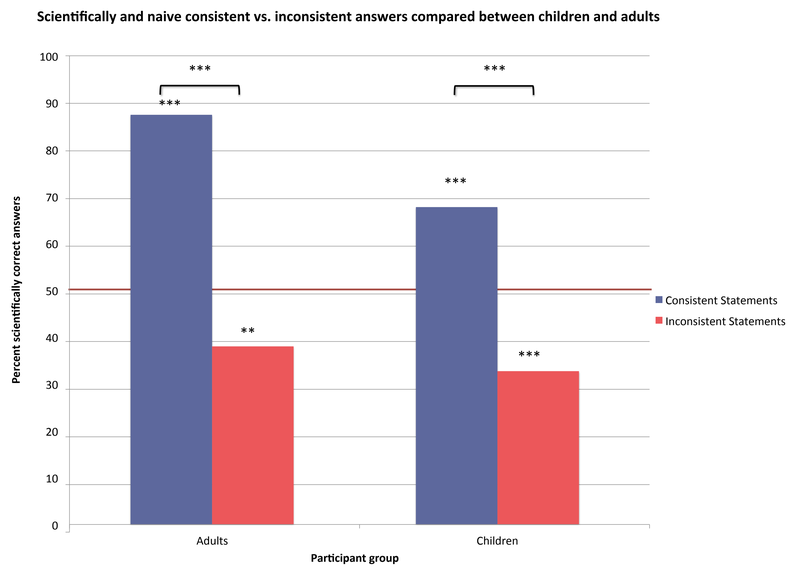
Study description

- A sample of 30 children (mean age = 7.68, *SD* = .74; 13 male and 17 female) and 41 adults (mean age = 26.01, *SD* = 8.80; 13 male and female) were tested
- Participants were presented with a collision event inspired by Michotte's launching event
- They heard a series of 30 statements and rated them as right or wrong with a button-press
- Answers were measured using e-prime
- Additionally adults experienced time pressure

RESULTS



†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.



DISCUSSION

- The two objects were consistently categorised into agent and patient roles with corresponding attributes
- Unlike adults, children were more likely to impose antagonistic interaction roles
- Under time pressure, adults rated the statements similar to children - suggesting that naïve concept are never fully abandoned

This study implies that children, as well as adults under time pressure, use dispositional causal concepts when interpreting a physical collision event

Reference
[1]Mayrhofer, R., & Waldmann, M. R. (2014). Agents and causes: Dispositional intuitions as a guide to causal structure. Cognitive Science doi: 10.1111/cogs.12132.
[2]White, P. A. (2006). The causal asymmetry. Psychological Review, 113, 132–147.
[3]White, P. A. (2009). Property transmission: An explanatory account of the role of similarity information in causal inference. Psychological Bulletin, 135, 774–793.

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